UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,174	11/13/2003	Fouad C. Freiha	CE11431JLO	7899

7590   03/01/2005

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EXAMINER
YUN, EUGENE

ART UNIT	PAPER NUMBER
2682	

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/712,174	FREIHA, FOUAD C.
	Examiner	Art Unit	
	Eugene Yun	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☒ Claim(s) *20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)	5) ☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date *11/13/03*.	6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by

Sandberg (US 2002/0172307).

Referring to Claim 1, Sandberg teaches a method for estimating the velocity of a

mobile radio, comprising the steps of:

receiving a radio signal at the mobile radio 102 (fig. 12);

computing an autocorrelation and power of the received signal 110 (fig. 12); and

dividing the autocorrelation by the power of the received signal (see paragraph

[0034]).

using a Bessel function lookup table to determine f^dt where f^d is the

Doppler frequency and t is the lag associated with the correlation and

using this information to estimate the velocity of the mobile radio (see paragraphs

[0034] to [0040]).

Referring to Claim 2, Sandberg also teaches the autocorrelation computed using

a lag (t) that is predetermined (see paragraph [0038]).

Referring to Claim 3, Sandberg also teaches the lag (t) stored within the mobile

radio (see paragraph [0038]).

Referring to Claim 4, Sandberg also teaches the lag(t) chosen from the interval

0.0<=t<=^/pi*vmax where vmax is the maximum velocity of the mobile radio and ^ is the

wavelength of the received signal (see paragraph [0035]).

Referring to Claim 5, Sandberg also teaches a Digital Signal Processor

(paragraph [0029]).

Referring to Claim 6, Sandberg also teaches only one a lag(t) is used in

estimating the velocity of the mobile radio (see paragraph [0038]).

Referring to Claim 7, Sandberg also teaches the mobile phone comprising a

cellular telephone (paragraph [0001]).

Referring to Claim 8, Sandberg also teaches the Bessel function lookup table

comprising an inverse Bessel function table (see paragraph [0038]).

Referring to Claim 9, Sandberg also teaches the inverse Bessel function stored

within the mobile radio (see paragraph [0038]).

Referring to Claim 10, Sandberg teaches a radio, comprising:

a receiver for receiving a radio signal 102 (fig. 12); and

a velocity estimation block coupled to the receiver for estimating the

velocity of the radio, the velocity estimation block including;

an autocorrelation block coupled to the receiver for determining

the autocorrelation of the received signal using a predetermined lag 110 (fig. 12);

a power block coupled to the receiver for determining power of the received

signal (see paragraph [0034]); and

a Bessel lookup table coupled to the autocorrelation and power blocks for estimating the velocity of the radio (see paragraph [0034]).

Referring to Claim 11, Sandberg also teaches the Bessel lookup table comprising an inverse Bessel lookup table (see paragraph [0038]).

Referring to Claim 12, Sandberg also teaches the autocorrelation determined by the autocorrelation block is divided by the power determined by the power block in order to determine the inverse Bessel function of 2*pi*fd*t, where fd is the Doppler frequency caused by the movement of the radio and t is the predetermined lag (paragraph [0038]).

Referring to Claim 13, Sandberg also teaches the predetermined lag is stored in the radio (paragraph [0038]).

Referring to Claim 14, Sandberg also teaches the inverse Bessel lookup table stored in the radio (paragraph [0038]).

Referring to Claim 15, Sandberg also teaches a cellular telephone (paragraph [0001]).

Referring to Claim 16, Sandberg also teaches the velocity estimation block comprising a Digital Signal Processor performing velocity estimation calculations (see paragraph [0029]).

Referring to Claim 17, Sandberg also teaches the lag (t) chosen from the interval $0.0<=t<=$^/pi*vmax where vmax is the maximum velocity of the mobile radio and ^ is the wavelength of the received signal (see paragraph [0035]).

Referring to Claim 18, Sandberg teaches a method for estimating the velocity of a radio communication device, comprising the steps of:

receiving a signal at the radio communication device 102 (fig. 12);

computing the power of the received signal (paragraph [0034]);

computing the autocorrelation of the received signal using a single lag

associated with the correlation 110 (fig. 12); and

using an inverse Bessel function table and the computed power and

autocorrelation to provide an estimate of the velocity of the radio communication device

(see paragraphs [0038]-[0040]).

Referring to Claim 19, Sandberg also teaches the single lag and the inverse

Bessel function table stored in the radio communication device (paragraph [0038]).

Allowable Subject Matter

3.   Claim 20 is objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

Regarding Claim 20, Sandberg does not teach the method of finding the velocity

of a radio communication device using a controller that uses the equation presented in

the claim.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Eugene Yun whose telephone number is (703) 305-

2689. The examiner can normally be reached on 8:30am-5:30pm Alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Vivian Chin can be reached on (703) 308-6739. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Eugene Yun
Examiner
Art Unit 2682

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